HALLIBURTON

SAFETY DATA SHEET

MICRO MATRIX® CEMENT RETARDER

Revision Date: 20-May-2015 **Revision Number:** 17

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name MICRO MATRIX® CEMENT RETARDER

Other means of Identification

Synonyms: None

Product Code: HM001062

Recommended use of the chemical and restrictions on use

Recommended Use Cement Retarder

Uses Advised Against No information available

Supplier's name, address and phone number

Manufacturer/Supplier

Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

E-Mail address: fdunexchem@halliburton.com

Emergency phone number

61 (08) 9455 8300

Australian Poisons Information Centre

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Skin Corrosion / irritation	Category 2 - H315
Serious Eye Damage / Eye Irritation	Category 2 - H319
Chronic Aquatic Toxicity	Category 3 - H402

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Warning

Hazard Statements
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H402 - Harmful to aquatic life

Precautionary Statements

Prevention
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear protective gloves/eye protection/face protection

Response
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Storage None

Disposal None

Contains

Substances	**CAS Number**
Amino tri(methylenephosphonic acid)	6419-19-8
Phosphonic acid	13598-36-2

Other hazards which do not result in classification
None known

Australia Classification
For the full text of the H-phrases mentioned in this Section, see Section 16

Classification Xi - Irritant.

Risk Phrases
R36/38 Irritating to eyes and skin.

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Amino tri(methylenephosphonic acid)	6419-19-8	10 - 30%	Eye Irrit. 2 (H319) Aquatic Acute 3 (H402)
Phosphonic acid	13598-36-2	1 - 5%	Acute Tox. 4 (H302) Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Met. Corr. 1 (H290)

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes eye irritation Causes skin irritation.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special Exposure Hazards

Decomposition in fire may produce harmful gases. Do not allow runoff to enter waterways.

Special protective equipment and precautions for fire fighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment.

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage

7.1. Precautions for Safe Handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from alkalis. Store in a cool well ventilated area. Keep container closed when not in use. Store locked up. Product has a shelf life of 60 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable	Not applicable
Phosphonic acid	13598-36-2	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment (PPE)

Respiratory Protection If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Organic vapor/acid gas respirator.

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.35 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions None known.

Environmental Exposure Controls No information available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color: Clear light yellow
Odor: Mild aromatic
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	2
Freezing Point/Range	-9 °C
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	> 100 °C / > 212 °F PMCC
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.15
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

None anticipated

10.5. Incompatible Materials

Strong alkalis.

10.6. Hazardous Decomposition Products

Oxides of nitrogen. Phosphines. Chlorine. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Sympotoms related to exposure

Most Important Symptoms/Effects

Causes eye irritation Causes skin irritation.

Numerical measures of toxicity

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Amino tri(methylenephosphonic acid)	6419-19-8	2700 mg/kg (Rat) 2910 mg/kg (Rat) 7300 mg/kg (Rat)	> 6310 mg/kg (Rabbit)	No data available
Phosphonic acid	13598-36-2	1500 mg/kg (Rat)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Product Information Under certain conditions of use, some of the product ingredients may cause the following:

Inhalation May cause respiratory irritation.

Eye Contact Causes moderate eye irritation.

Skin Contact Causes moderate skin irritation.

Ingestion Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Exposure Levels

No data available

Interactive effects

Skin disorders.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Amino tri(methylenephosphonic acid)	6419-19-8	Not irritating to skin in rabbits.

Phosphonic acid	13598-36-2	Corrosive to skin (Rabbit)

Substances	CAS Number	Eye damage/irritation
Amino tri(methylenephosphonic acid)	6419-19-8	Eye, rabbit: Causes moderate eye irritation.
Phosphonic acid	13598-36-2	Corrosive to eyes

Substances	CAS Number	Skin Sensitization
Amino tri(methylenephosphonic acid)	6419-19-8	Did not cause sensitization on laboratory animals (guinea pig)
Phosphonic acid	13598-36-2	Not applicable due to corrosivity of the substance.

Substances	CAS Number	Respiratory Sensitization
Amino tri(methylenephosphonic acid)	6419-19-8	No information available
Phosphonic acid	13598-36-2	No information available

Substances	CAS Number	Mutagenic Effects
Amino tri(methylenephosphonic acid)	6419-19-8	In vivo tests did not show mutagenic effects. (similar substances) In vitro tests did not show mutagenic effects
Phosphonic acid	13598-36-2	In vitro tests did not show mutagenic effects

Substances	CAS Number	Carcinogenic Effects
Amino tri(methylenephosphonic acid)	6419-19-8	Did not show carcinogenic effects in animal experiments
Phosphonic acid	13598-36-2	No information available.

Substances	CAS Number	Reproductive toxicity
Amino tri(methylenephosphonic acid)	6419-19-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Phosphonic acid	13598-36-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Amino tri(methylenephosphonic acid)	6419-19-8	No significant toxicity observed in animal studies at concentration requiring classification.
Phosphonic acid	13598-36-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Amino tri(methylenephosphonic acid)	6419-19-8	No significant toxicity observed in animal studies at concentration requiring classification.
Phosphonic acid	13598-36-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable
Phosphonic acid	13598-36-2	Not applicable

12. Ecological Information

Ecotoxicity

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Amino tri(methylenephosphonic acid)	6419-19-8	EC50(72h): 80 mg/L (growth rate) (Skeletonema costatum) EC50 (96h) 20 mg/L (Selenastrum)	LC50 (96h) 160 mg/L (Oncorhynchus mykiss) LC50 (96h) > 330 mg/L (Lepomis macrochirus) NOEC (14d) 47 mg/L (Oncorhynchus mykiss) NOEC (60d) 23 mg/L (Oncorhynchus mykiss)	EC0 > 250 mg/L (Pseudomonas putida) EC0 (5d) >100 mg/L (activated sludge)	EC50 (48h): 297 mg/L (Daphnia magna) LC50 (48h): 94 mg/L (Acartia tonsa) NOEC (28d): >= 25 mg/L (Daphnia magna) LC50 (48h) 94 mg/L (Acartia tonsa)
Phosphonic acid	13598-36-2	EC50(72h): 153 mg/L (Pseudokirchnerella subcapitata)	LC50(96h): > 100 mg/L (Cyprinus carpio)	No information available	EC50(48h): > 1000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Amino tri(methylenephosphonic acid)	6419-19-8	Product is not biodegradable (23% @ 28d)
Phosphonic acid	13598-36-2	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Amino tri(methylenephosphonic acid)	6419-19-8	-3.53
Phosphonic acid	13598-36-2	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Amino tri(methylenephosphonic acid)	6419-19-8	Soluble in water KOC = 11740
Phosphonic acid	13598-36-2	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Disposal of any contaminated packaging

Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Special precautions during transport

None

HazChem Code
2X

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Poisons Schedule number
S5

16. Other information

Date of preparation or review

Revision Date: 20-May-2015

Revision Note Revision Note
SDS sections updated: 2

Full text of R-phrases referred to under Sections 2 and 3
R22 Harmful if swallowed.
R35 Causes severe burns.
R36 - Irritating to eyes
R36/38 Irritating to eyes and skin.
R52 Harmful to aquatic organisms.

Full text of H-Statements referred to under sections 2 and 3
H290 - May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H402 - Harmful to aquatic life

Additional information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight CAS – Chemical Abstracts Service EC50 – Effective Concentration 50% LC50 – Lethal Concentration 50% LD50 – Lethal Dose 50% LL50 – Lethal Loading 50% mg/kg – milligram/kilogram mg/L – milligram/liter NOEC – No Observed Effect Concentration OEL – Occupational Exposure Limit PBT – Persistent Bioaccumulative and Toxic ppm – parts per million STEL – Short Term Exposure Limit TWA – Time-Weighted Average vPvB – very Persistent and very Bioaccumulative h - hour mg/m^3 - milligram/cubic meter mm - millimeter mmHg - millimeter mercury w/w - weight/weight d - day

Key literature references and sources for data
www.ChemADVISOR.com/

NZ CCID

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End of Safety Data Sheet